

CLAIMS

1. A composition comprising,
a structured fluid, comprising
a polar solvent,
a lipid or a surfactant, and
an essential oil or a dissolution/solubilization agent or both an essential oil
and a dissolution/solubilization agent, said dissolution/solubilization agent being selected
from the group consisting of
 - a. gentisic acid, benzoic acid, salicylic acid, N-alkylated amino acids, or a salt thereof;
 - b. a fat-soluble vitamin or a salt thereof;
 - c. amphiphilic derivatives of a water-soluble vitamin or a salt thereof;
 - d. 8-hydroxyquinoline; and
 - e. a low water-solubility amino acid or a salt thereof; and
a compound present in said structured fluid, wherein said compound is
otherwise less than 5% by weight soluble in soybean oil.
2. The composition of claim 1, wherein said structured fluid is selected from the group
consisting of a liquid crystalline phase, an L1 phase, an L2 phase, an L3 phase, an emulsion,
a microemulsion, and a combination thereof.
3. A composition as recited in claim 1, wherein said dissolution/solubilization agent has
at least one aromatic group or
at least one carbon-carbon double bond or
at least one polar group
in its molecular structure.

4. A composition as recited in claim 1, wherein said dissolution/solubilization agent has a polar group selected from the group consisting of: aldehyde, ketone, carboxylic ester, carboxylic acid, isocyanate, amide, acyl cyanoguanidine, acyl guanylurea, acyl biuret, N,N-dimethylamide, nitrosoalkane, nitroalkane, nitrate ester, nitrite ester, nitrone, nitrosamine, pyridine N-oxide, nitrile, isonitrile, amine borane, amine haloborane, sulfone, phosphine sulfide, arsine sulfide, sulfonamide, sulfonamide methylimine, alcohol (monofunctional), ester (monofunctional), secondary amine, tertiary amine, mercaptan, thioether, primary phosphine, secondary phosphine, tertiary phosphine, carboxylate, sulfate, sulfamate, sulfonate, thiosulfate, sulfinde, phosphate, phosphonate, phosphinate, nitroamide, tris(alkylsulfonyl)methide, xanthate, ammonium, pyridinium, phosphonium, sulfonium, sulfoxonium, ammonio acetate, phosphoniopropane sulfonate, pyridinioethyl sulfate, amine oxide, phosphoryl, phosphine oxide, arsine oxide, sulfoxide, sulfoximine, sulfone diimine, and ammonio amidate.

5. A composition as recited in claim 1, wherein said dissolution/solubilization agent has a molecular weight from about 50 to about 500 Dalton.

6. A composition as recited in claim 1, wherein said dissolution/solubilization agent has a molecular weight from about 100 to about 200 Dalton.

7. A composition as recited in claim 1, wherein said dissolution/solubilization agent has an oil-water partition coefficient greater than about 10.

8. A composition as recited in claim 1, wherein said dissolution/solubilization agent has an oil-water partition coefficient greater than about 100.

9. A composition as recited in claim 1, wherein said dissolution/solubilization agent has an oil-water partition coefficient greater than about 1000.

10. A composition as recited in claim 1, wherein said pharmaceutical active is difficultly soluble in water.

11. A composition as recited in claim 1, wherein said compound is a pharmaceutical active.

12. A composition as recited in claim 11, wherein said pharmaceutical active has a solubility in water such that a single therapeutic dose of said compound requires more than 100 milliliters of water to solubilize it.

13. A composition as recited in claim 11, wherein said pharmaceutical active has a solubility in octanol such that a single therapeutic dose of said compound requires more than 10 milliliters of octanol to solubilize it.

14. A composition as recited in claim 1, wherein said dissolution/solubilization agent comprises an essential oil or a component thereof.

15. A composition as recited in claim 1, wherein said essential oil is selected from allspice berry, amber essence, anise seed, arnica, balsam of peru, basil, bay leaf, bergamot, bois de rose (rosewood), cajeput, calendula (marigold pot), white camphor, caraway seed, cardamon, carrot seed, cedarwood, celery, german or hungarian chamomile, roman or english chamomile, cinnamon, citronella, clary sage, clovebud, coriander, cumin, cypress, eucalyptus, fennel, siberian fir needle, frankincense (olibanum oil), garlic, rose geranium, ginger, grapefruit, hyssop, jasmine absolute, jojoba, juniper berry, lavender, lemon, lemongrass, lime, sweet marjoram, mugwort, mullein flower, myrrh gum, bigarade neroli, nutmeg, bitter orange, sweet orange, oregano, patchouly, pennyroyal, black pepper, peppermint, petitgrain, pine needle, poke root, rose absolute, rosehip seed, rosemary,

dalmation sage, santalwood oil, sassafras, spearmint, spikenard, spruce (hemlock), tangerine, tea tree, thuja (cedar leaf), thyme, vanilla extract, vetivert, wintergreen, witch hazel (hamamelia) extract, or ylang ylang (cananga) extract.

5 16. A composition as recited in claim 1, wherein said essential oil is selected from
2,6-dimethyl-2,4,6-octatriene; 4-propenylanisole; benzyl-3-phenylpropenoic acid; 1,7,7-
trimethylbicyclo[2.2.1]heptan-2-ol; 2,2-dimethyl-3-methylenebicyclo[2.2.1]heptane;
1,7,7-trimethylbicyclo[2.2.1]heptane; trans-8-methyl-n-vanillyl-6-nonenamide; 2,2,5-
trimethylbicyclo[4.1.0]hept-5-ene; 5-isopropyl-2-methylphenol; p-mentha-6,8-dien-2-ol;
10 p-mentha-6,8-dien-2-one; .beta.-caryophyllene; 3-phenylpropenaldehyde; mixed geranial
and neral; 3,7-dimethyl-6-octenal; 3,7-dimethyl-6-octen-1-ol; 4-allylanisole; ethyl 3-
phenylpropenoic acid; 3-ethoxy-4-hydroxybenzaldehyde; 1,8-cineole; 4-allyl-2-
methoxyphenol; 3,7,11-trimethyl-2,6,10-dodecatrien-1-ol; 1,3,3-
trimethylbicyclo[2.2.1]heptan-2-ol; 1,3,3-trimethylbicyclo[2.2.1]heptan-2-one; trans-3,7-
dimethyl-2,6-octadien-1-ol; trans-3,7-dimethyl-2,6-octadien-1-yl acetate; 3-methyl-2-(2-
pentenyl)-2-cyclopenten-1-one; p-mentha-1,8-diene; 3,7-dimethyl-1,6-octadien-3-ol; 3,7-
dimethyl-1,6-octadien-3-yl acetate; p-menthan-3-ol; p-menthan-3-one; methyl 2-
aminobenzoate; methyl-3-oxo-2-(2-pentenyl)-cyclopentane acetate; methyl 2-
hydroxybenzoate; 7-methyl-3-methylene-1,6-octadiene; cis-3,7-dimethyl-2,6-octadien-1-
ol; 2,6,6-trimethylbicyclo[3.1.1]hept-2-ene; 6,6-dimethyl-2-
20 methylenebicyclo[3.1.1]heptane; p-menth-4(8)-en-3-one; p-menth-1-en-4-ol; p-mentha-
1,3-diene; p-menth-1-en-8-ol; 2-isopropyl-5-methylphenol.

17. A composition as recited in claim 1, wherein said dissolution/solubilization agent is
25 selected from gentisic acid ethanolamine, tryptophan, ascorbyl palmitate, 8-
hydroxyquinoline, and alpha-tocopherol.

18. A composition as recited in claim 1, wherein said essential oil is selected from ylang ylang, clovebud, cedarwood, spearmint, ginger, patchouli, santalwood, carrot seed, fir needle, peppermint and mixtures of peppermint and thyme.

5 19. A composition as recited in claim 1, wherein said essential oil is selected from peppermint; spearmint; sweet basil; thyme; ginger; rosemary; fennel; sage; jasmine; and clove.

10 20. A composition as recited in claim 1, wherein said essential oil is selected from marjoram; palmarosa; bois de rose, oil of bay and oil of vanilla.

21. A composition as recited in claim 1, wherein said essential oil is selected from oil of bay, peppermint, thyme, sweet basil, palmarosa.

5 22. A composition as recited in claim 1, wherein said dissolution/solubilization agent comprises oil soluble vitamins.

23. A composition as recited in claim 1, wherein said dissolution/solubilization agent comprises a tocopherol.

20 24. A composition as recited in claim 1, wherein said dissolution/solubilization agent comprises alpha tocopherol.

25 25. A composition as recited in claim 1, wherein said dissolution/solubilization agent comprises low water solubility amino acids.

26. A composition as recited in claim 1, wherein said dissolution/solubilization agent comprises tryptophan.

27. A composition comprising,
a structured fluid, comprising
a polar solvent,
a lipid or a surfactant, and
an essential oil or a dissolution/solubilization agent or both an essential oil
and a dissolution/solubilization agent, said dissolution/solubilization agent having
a. at least one polar group in its molecular structure,
b. a molecular weight from about 50 to about 500 Dalton and
c. an octanol-water partition coefficient greater than about 10; and
a compound present in said structured fluid, wherein said compound is
otherwise less than 5% by weight soluble in soybean oil.

28. The composition of claim 27, wherein said structured fluid is selected from the group
consisting of a liquid crystalline phase, an L1 phase, an L2 phase, an L3 phase, an emulsion,
a microemulsion, and a combination thereof.

29. A composition as recited in claim 27, wherein said dissolution/solubilization agent
has
at least one aromatic group or
at least one carbon-carbon double bond or
at least one polar group
in its molecular structure.

30. A composition as recited in claim 27, wherein said dissolution/solubilization agent
has a polar group selected from the group consisting of: aldehyde, ketone, carboxylic ester,
carboxylic acid, isocyanate, amide, acyl cyanoguanidine, acyl guanylurea, acyl biuret, N,N-
dimethylamide, nitrosoalkane, nitroalkane, nitrate ester, nitrite ester, nitron, nitrosamine,
pyridine N-oxide, nitrile, isonitrile, amine borane, amine haloborane, sulfone, phosphine

sulfide, arsine sulfide, sulfonamide, sulfonamide methylimine, alcohol (monofunctional), ester (monofunctional), secondary amine, tertiary amine, mercaptan, thioether, primary phosphine, secondary phosphine, tertiary phosphine, carboxylate, sulfate, sulfamate, sulfonate, thiosulfate, sulfinde, phosphate, phosphonate, phosphinate, nitroamide, tris(alkylsulfonyl)methide, xanthate, ammonium, pyridinium, phosphonium, sulfonium, sulfoxonium, ammonio acetate, phosphoniopropane sulfonate, pyridinioethyl sulfate, amine oxide, phosphoryl, phosphine oxide, arsine oxide, sulfoxide, sulfoximine, sulfone diimine, and ammonio amidate.

31. A composition as recited in claim 27, wherein said dissolution/solubilization agent has a molecular weight from about 100 to about 200 Dalton.
32. A composition as recited in claim 27, wherein said dissolution/solubilization agent has an oil-water partition coefficient greater than about 10.
33. A composition as recited in claim 27, wherein said dissolution/solubilization agent has an oil-water partition coefficient greater than about 100.
34. A composition as recited in claim 27, wherein said dissolution/solubilization agent has an oil-water partition coefficient greater than about 1000.
35. A composition as recited in claim 27, wherein said compound is a pharmaceutical active.
36. A composition as recited in claim 35, wherein said pharmaceutical active is difficultly soluble in water.

37. A composition as recited in claim 35, wherein said pharmaceutical active has a solubility in water such that a single therapeutic dose of said compound requires more than 100 milliliters of water to solubilize it.

5 38. A composition as recited in claim 35, wherein said pharmaceutical active has a solubility in octanol such that a single therapeutic dose of said compound requires more than 10 milliliters of octanol to solubilize it.

10 39. A composition as recited in claim 27, wherein said dissolution/solubilization agent comprises an essential oil or a component thereof.

15 40. A composition as recited in claim 27, wherein said essential oil is selected from allspice berry, amber essence, anise seed, arnica, balsam of peru, basil, bay leaf, bergamot, bois de rose (rosewood), cajeput, calendula (marigold pot), white camphor, caraway seed, cardamon, carrot seed, cedarwood, celery, german or hungarian chamomile, roman or english chamomile, cinnamon, citronella, clary sage, clovebud, coriander, cumin, cypress, eucalyptus, fennel, siberian fir needle, frankincense (olibanum oil), garlic, rose geranium, ginger, grapefruit, hyssop, jasmine absolute, jojoba, juniper berry, lavender, lemon, lemongrass, lime, sweet marjoram, mugwort, mullein flower, myrrh gum, bigarade neroli, nutmeg, bitter orange, sweet orange, oregano, patchouly, pennyroyal, black pepper, peppermint, petitegrain, pine needle, poke root, rose absolute, rosehip seed, rosemary, dalmation sage, santalwood oil, sassafras, spearmint, spikenard, spruce (hemlock), tangerine, tea tree, thuja (cedar leaf), thyme, vanilla extract, vetivert, wintergreen, witch hazel (hamamelia) extract, or ylang ylang (cananga) extract.

25 41. A composition as recited in claim 27, wherein said essential oil is selected from 2,6-dimethyl-2,4,6-octatriene; 4-propenylanisole; benzyl-3-phenylpropenoic acid; 1,7,7-trimethylbicyclo[2.2.1]heptan-2-ol; 2,2-dimethyl-3-methylenebicyclo[2.2.1]heptane; 1,7,7-

trimethylbicyclo[2.2.1]heptane; trans-8-methyl-n-vanillyl-6-nonenamide; 2,2,5-trimethylbicyclo[4.1.0]hept-5-ene; 5-isopropyl-2-methylphenol; p-mentha-6,8-dien-2-ol; p-mentha-6,8-dien-2-one; .beta.-caryophyllene; 3-phenylpropenaldehyde; mixed geranial and neral; 3,7-dimethyl-6-octenal; 3,7-dimethyl-6-octen-1-ol; 4-allylanisole; ethyl 3-phenylpropenoic acid; 3-ethoxy-4-hydroxybenzaldehyde; 1,8-cineole; 4-allyl-2-methoxyphenol; 3,7,11-trimethyl-2,6,10-dodecatrien-1-ol; 1,3,3-trimethylbicyclo[2.2.1]heptan-2-ol; 1,3,3-trimethylbicyclo[2.2.1]heptan-2-one; trans-3,7-dimethyl-2,6-octadien-1-ol; trans-3,7-dimethyl-2,6-octadien-1-yl acetate; 3-methyl-2-(2-pentenyl)-2-cyclopenten-1-one; p-mentha-1,8-diene; 3,7-dimethyl-1,6-octadien-3-ol; 3,7-dimethyl-1,6-octadien-3-yl acetate; p-menthan-3-ol; p-menthan-3-one; methyl 2-aminobenzoate; methyl-3-oxo-2-(2-pentenyl)-cyclopentane acetate; methyl 2-hydroxybenzoate; 7-methyl-3-methylene-1,6-octadiene; cis-3,7-dimethyl-2,6-octadien-1-ol; 2,6,6-trimethylbicyclo[3.1.1]hept-2-ene; 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane; p-menth-4(8)-en-3-one; p-menth-1-en-4-ol; p-mentha-1,3-diene; p-menth-1-en-8-ol; 2-isopropyl-5-methylphenol.

42. A composition as recited in claim 27, wherein said dissolution/solubilization agent is selected from
gentisic acid ethanolamine,
tryptophan,
ascorbyl palmitate,
8-hydroxyquinoline, and
alpha-tocopherol.

43. A composition as recited in claim 27, wherein said essential oil is selected from ylang ylang, clovebud, cedarwood, spearmint, ginger, patchouli, santalwood, carrot seed, fir needle, peppermint and mixtures of peppermint and thyme.

44. A composition as recited in claim 27, wherein said essential oil is selected from peppermint; spearmint; sweet basil; thyme; ginger; rosemary; fennel; sage; jasmine; and clove.

5 45. A composition as recited in claim 27, wherein said essential oil is selected from marjoram; palmarosa; bois de rose, oil of bay and oil of vanilla.

46. A composition as recited in claim 27, wherein said essential oil is selected from oil of bay, peppermint, thyme, sweet basil, palmarosa.

10 47. A composition as recited in claim 27, wherein said dissolution/solubilization agent comprises oil soluble vitamins.

15 48. A composition as recited in claim 27, wherein said dissolution/solubilization agent comprises a tocopherol.

49. A composition as recited in claim 27, wherein said dissolution/solubilization agent comprises alpha tocopherol.

20 50. A composition as recited in claim 27, wherein said dissolution/solubilization agent comprises low water solubility amino acids.

51. A composition as recited in claim 27, wherein said dissolution/solubilization agent comprises tryptophan.

25 52. An internally administerable solvent system comprising a structured fluid formed from
a. a polar solvent,

- b. a lipid or a surfactant, and
- c. an essential oil or a dissolution/solubilization agent or both an essential oil and a dissolution/solubilization agent, said solubilization agent being selected from
 - d. gentisic acid, benzoic acid, salicylic acid, N-alkylated amino acids, or a salt thereof;
 - e. a fat-soluble vitamin or a salt thereof;
 - f. amphiphilic derivatives of a water-soluble vitamin or a salt thereof;
 - g. 8-hydroxyquinoline; and
 - g. a low water-solubility amino acid or a salt thereof.

53. An internally administerable solvent system comprising a structured fluid formed from
- a. a polar solvent,
 - b. a lipid or a surfactant, and
 - c. an essential oil or a dissolution/solubilization agent or both an essential oil and a dissolution/solubilization agent, said solubilization agent having
 - i. at least one polar group in its molecular structure,
 - ii. a molecular weight from about 50 to about 500 Dalton and
 - iii. an octanol-water partition coefficient greater than about 10.

54. A method for solubilizing a compound wherein said compound is otherwise less than 5% by weight soluble in soybean oil comprising the steps of,
- combining said compound with a solvent system comprising a structured fluid wherein said structured fluid comprises
- a polar solvent,
 - a lipid or a surfactant, and
 - an essential oil or a dissolution/solubilization agent or both an essential oil and a

dissolution/solubilization agent, said dissolution/solubilization agent being selected from the group consisting of

- a. gentisic acid, benzoic acid, salicylic acid, N-alkylated amino acids, or a salt thereof;
- b. a fat-soluble vitamin or a salt thereof;
- c. amphiphilic derivatives of a water-soluble vitamin or a salt thereof;
- d. 8-hydroxyquinoline; and
- e. a low water-solubility amino acid or a salt thereof; and

allowing said compound to be incorporated into said solvent system.

55. The method of claim 54, wherein said structured fluid is selected from the group consisting of a liquid crystalline phase, an L1 phase, an L2 phase, an L3 phase, an emulsion, a microemulsion, or a combination thereof.

56. A composition as recited in claim 27, wherein said dissolution/solubilization agent has a molecular weight from about 50 to about 500 Dalton.